

Amendments to the Claims

The following listing of claims replaces all previous listings or versions thereof:

1. (Original) A method for treating or preventing multiple sclerosis (MS) comprising administering to a subject with MS a composition that causes an increase in the activity or expression of at least one gene product selected from the group consisting of those genes indicated by a minus (-) sign in Tables 1-15, other than those indicated by an asterisk.
2. (Original) The method of claim 1, further comprising a second MS therapy.
3. (Original) The method of claim 2, wherein the second MS therapy is given before the composition.
4. (Original) The method of claim 2, wherein the second MS therapy is given after the composition.
5. (Original) The method of claim 2, wherein the second MS therapy is given concurrent with the composition.
6. (Original) The method of claim 2, wherein said second MS therapy is interferon β 1a, interferon β 1b, glatiramer acetate, and mitoxantrone.
7. (Original) The method of claim 1, wherein the composition comprises peptide.
8. (Original) The method of claim 1, wherein the composition comprises a small molecule.
9. (Original) The method of claim 1, wherein the composition is an organo-pharmaceutical.
10. (Original) The method of claim 1, wherein the composition comprises an expression cassette comprising a nucleic acid encoding the selected gene product and a promoter active in eukaryotic cells, said nucleic acid operably linked to said promoter.
11. (Original) The method of claim 10, wherein said nucleic acid is comprised in a non-viral vector.

Amendments to the Claims:

1. (Original) A method for treating or preventing multiple sclerosis (MS) comprising administering to a subject with MS a composition that causes an increase in the activity or expression of at least one gene product selected from the group consisting of those genes indicated by a minus (-) sign in Tables 1-15, other than those indicated by an asterisk.
2. (Original) The method of claim 1, further comprising a second MS therapy.
3. (Original) The method of claim 2, wherein the second MS therapy is given before the composition.
4. (Original) The method of claim 2, wherein the second MS therapy is given after the composition.
5. (Original) The method of claim 2, wherein the second MS therapy is given concurrent with the composition.
6. (Original) The method of claim 2, wherein said second MS therapy is interferon β 1a, interferon β 1b, glatiramer acetate, and mitoxantrone.
7. (Original) The method of claim 1, wherein the composition comprises peptide.
8. (Original) The method of claim 1, wherein the composition comprises a small molecule.
9. (Original) The method of claim 1, wherein the composition is an organo-pharmaceutical.
10. (Original) The method of claim 1, wherein the composition comprises an expression cassette comprising a nucleic acid encoding the selected gene product and a promoter active in eukaryotic cells, said nucleic acid operably linked to said promoter.
11. (Original) The method of claim 10, wherein said nucleic acid is comprised in a non-viral vector.

12. (Original) The method of claim 10, wherein said nucleic acid is comprised in a viral vector.
13. (Original) The method of claim 12, wherein said viral vector is an adenoviral vector, an adeno-associated viral vector, a retroviral vector, a herpesviral vector, a vaccinia viral vector or a polyoma viral vector.
14. (Original) The method of claim 10, wherein said promoter is a constitutive promoter, a tissue specific promoter or an inducible promoter.
15. (Original) The method of claim 14, wherein the tissue specific promoter is a neuronal cell promoter, a glial cell promoter, a monocyte promoter, a lymphocyte promoter, or a B cell promoter.
16. (Original) The method of claim 10, wherein said expression cassette further comprises a polyadenylation signal.
17. (Original) The method of claim 1, wherein said composition is administered intradermally, subcutaneously, intramuscularly, intraperitoneally, intravenously, intranasally, intraalveolarly, parenterally, intrathecally, intraparenchymally or intraperitoneally.
18. (Original) The method of claim 1, wherein said composition is administered to said mammal more than once.
19. (Original) The method of claim 1, wherein said composition is administered to said mammal in discrete repeated dosings.
20. (Original) The method of claim 1, wherein the at least one gene product comprises ORF E7 from papillomavirus 5b genome homolog (D26561), interferon-inducible peptide precursor 16-Jun (U22970), cadherin FIB1 (AB000895), cyclophilin-like protein Cyp-60 (U37219), and interferon α -inducible protein p27 (X67325).

21. (Presently amended) The method of claim 1-~~or~~ 20, wherein at least one gene product comprises cyclin E (X95406), thymocyte antigen CD1a (M28825), serine protease inhibitor p19 (U71364), and skeletal muscle troponin T (M21984).
22. (Presently amended) The method of ~~claims 20, or~~ claim 21, wherein the at least one gene product further comprises IFNA (interferon alpha-d) (J00210), Interferon-alpha receptor (J03171), Interferon-inducible protein 27-Sep (J04164), Interferon regulatory factor 3 (Z56281), Interferon-induced 17-kDa/15-kDa protein (M13755), Interferon-inducible and MXA homolog p78 protein (M33882), Interferon-inducible 56 Kd protein (M24594), IFN-inducible 1-8D (X57351), Tumor necrosis factor type 1 receptor associated protein TRAP1 (U12595), granulocyte-macrophage colony stimulating factor CSF1 (M13207), TGF-beta superfamily protein (AB000584), Lipoxxygenase (J03600), Myeloid cell differentiation protein (MCL1) (L08246), Chemokine TARC (D43767), CD110 protein (Y10506), CD152/CTLA4 (Y10514), Thrombospondin 2 (HG896-HT896), IgG Fc binding protein (D84239), Skin-antimicrobial-peptide 1 (SAP1) (Z71389), Mac-2 binding protein (L13210), Interleukin 1 receptor (M27492), Histone H1x (D64142), Histone H3.1 (M60746), Histone H4 (M16707), H4 histone (X60486), NBPhox (D82344), HOX2G (X16667), HOX4D (X59373), HOX11 (S38742), Androgen regulated homeobox protein (NKX31) (U80669), Paired-box protein (PAX2) (M89470), DNA-binding protein (GLI3) (M57609), Stat2 (U18671), Transcription factor ISGF-3 (M97935), Neurogenic basic-helix-loop-helix protein (NeuroD2) (U58681), H-neuro-d4 (U43843), Lim-Domain Transcription Factor Lim-1 (HG4318-HT4588), Cyclin D3 (M92287), Cyclin E1 (M74093), Cyclin G1 (X77794), Kinase Inhibitor P27kip1 Cyclin-Dependent (HG4258-HT4528), Cdk-inhibitor p57KIP2 (KIP2) (U22398), HsMcm6 (D84557), Retinoblastoma related protein (p107) (L14812), thymidylate synthase-inducer transcription factor LSF (U03494), 218kD Mi-2 protein (X86691), Methyl-CpG-binding protein 2 (X99687), Androgen receptor (M23263), Retinoid X receptor beta (M84820), Orphan receptor ROR gamma (U16997), Orphan nuclear receptor (DAX1) (U31929), OTF-2 lymphoid-specific transcription factor (X13810), TRANSCRIPTION FACTOR (NFATcb) (U59736), NF-AT4c (L41067), YY1 (M77698), PLZF kruppel-like zinc finger protein (Z19002), Zinc finger protein, Hsa11 (X98833), TAFII70-alpha (L25444), RNA polymerase II associated protein RAP74 (X64037), AP-4 (S73885), Lupus p70 (Ku)

autoantigen protein (J04611), Zinc Finger protein Znfl55 (HG4243-HT4513), HPV16 E1 protein binding protein (U96131), E1A enhancer binding protein (E1A-F) (U18018), DNA-binding protein ABP/ZF (U82613), CCAAT transcription binding factor subunit gamma (NFY-C) (Z74792), anti-oxidant nuclear respiratory factor-1 (NRF-1) (L22454), Sodium Channel 1 (HG4593-HT4998), Sodium channel 2 (hBNaC2) (U78180), HBK2 potassium channel (X17622), Vacuolar H⁺ ATPase proton channel subunit (M62762), Calcium Channel, Voltage-Gated, Alpha 1e Subunit, 2 (HG3242-HT3419), Calcium Channel, Voltage-Gated, Alpha 1e Subunit, 3 (HG3242-HT4231), Beta nerve growth factor (X52599), Glial Growth Factor 2 (HG4704-HT5146), Fibroblast growth factor receptor 4 (L03840), Fibroblast Growth Factor Receptor K-Sam (HG3432-HT3621), Ciliary neurotrophic factor 1 (X55889), Heparin-binding EGF-like growth factor (M60278), Corticotropin releasing factor receptor (L23333), Connective tissue growth factor (M92934), Growth hormone releasing factor (L00137), Preprothyrotropin-releasing hormone (M63582), Proneurotensin-Proneuromedin N (U91618), Serotonin receptor (5HT1E) (M91467), 5-HT6 serotonin receptor (L41147), Serotonin 1B receptor (D10995), Calcitonin (HG2290-HT2386), Estrogen receptor-related protein (hERRa1) (L38487), m4 muscarinic acetylcholine receptor (M16405), ERF-1 (X79066), PTH-like hormone A (M24351), Dopamine D1A receptor (M85247), Dopamine D4 receptor (S76942), Glutamate transporter EAAT3 (U08989), Prepro-oxytocin-neurophysin I (OXT) (M11186), Vesicular acetylcholine transporter (U09210), Chorionic gonadotropin beta subunit (K03183), Enkephalin (J00123), Delayed rectifier potassium channel (KVLQT1-Iso5) (AF003743), Melanocortin 5 receptor (MC5R) (L27080), Thyroxine-binding globulin (M14091), GABA-A receptor, beta 1 subunit (X14767), Gamma-aminobutyric acid transporter type 3 (S75989), Strychnine binding subunit of inhibitory glycine receptor (X52008), EP3 prostanoid receptor EP3-I (S68874), Endomembrane proton pump subunit (M25809), NaK-ATPase gamma subunit (U50743), Mitochondrial ATP synthase c subunit (X69908), OXA1Hs (X80695), Electron transfer flavoprotein beta subunit (X71129), COX6B (AC002115), cytochrome c oxidase subunit VIIb (Z14244), Cytochrome b pseudo (U38268), Putative copper uptake protein hCTR2 (U83461), Transferrin (S95936), Metallothionein-I-A (K01383), Metallothionein IIa (V00594), Metallothionein III (M93311), Mitochondrial creatine kinase (CKMT)

(J04469), Mitochondrial isocitrate dehydrogenase (NADP+) (X69433), Mitochondrial aspartate aminotransferase (M22632), Mitochondrial aldehyde dehydrogenase x (M63967), Aldehyde dehydrogenase type III (ALDHIII) (M74542), Aldehyde dehydrogenase 6 (U07919), Aldehyde dehydrogenase (ALDH8) (U37519), Aldehyde reductase (J04794), Oxidoreductase HHCMA56 (U13395), NAD⁺-isocitrate dehydrogenase (U87972), Selenoprotein P (Z11793), Salivary peroxidase (U39573), Glutathione S-transferase (GSTM5) (L02321), Glutathione S-transferase theta 2 (GSTT2) (L38503), Mitochondrial NADH-ubiquinone reductase 24Kd subunit (M22538), Succinate dehydrogenase iron-protein subunit (sdhB) (U17886), Carnitine Calcium-Binding protein Mitochondrial (HG4749-HT5197), Heme oxygenase-2 (S34389), p38beta MAP kinase (U53442), C-Ki-Ras P21 (HG2036-HT2090), Protein kinase (MLK-3) (L32976), Kinase Myt1 (U56816), Anaplastic lymphoma kinase receptor (U66559), Receptor tyrosine kinase TrkC (U05012), G protein-coupled receptor kinase (GRK6) (L16862), G-protein coupled receptor (X95876), MEK kinase 3 (U78876), MNK1 (AB000409), JNK activating kinase (JNKK1) (U17743), FK506-binding protein (FKBP) (M34539), Insulin-stimulated protein kinase 1 (ISPK-1) (U08316), Serine Kinase Psk-H1 (HG1019-HT1019), Calcium, calmodulin-dependent protein kinase II gamma (U50360), Notch 4 (U89336), Myelin associated oligodendrocytic basic protein (D28114), Axin (AF009674), Neurofilament H (X15306), Neurofilament subunit NF-L (X05608), Neurofilament triplet L protein (U57341), Axonal transporter of synaptic vesicles (X90840), Cytokeratin 4 (X07695), Cytokeratin 17 (Z19574), K6b epidermal keratin type II (L00205), Dystroglycan (DAG1) (L19711), Macrophage capping protein (M94345), LAG-1 (X53683), Keratin type II (58 kD) (M21389), Skeletal muscle alpha 2 actinin (M86406), 22kDa smooth muscle protein (SM22) (M95787), Myf-4 (X17651), and MYF6 (X52011), Non-muscle myosin light chain MLC (M22919), 815A9.1 myosin heavy chain (AF001548), Myosin-I beta (X98507), Fibroblast muscle-type tropomyosin (M12125), Cadherin FIB1 (AB000895), Cadherin FIB2 (AB000896), Contactin (Z21488), Fibronectin (FN precursor) (X02761), Beta-2 integrin alphaD (U40279), B-cam (X80026), Alpha-1 collagen type II (M60299), elastase IIB (M16653), Basement membrane heparan sulfate proteoglycan (X62515), Guanylate kinase (GUK1) (L76200), RAD23A homolog (AD000092), Mismatch repair protein (hMLH1) (AF001359),

thymidylate kinase (CDC8) (L16991), Inhibitor of apoptosis protein 1 (U45878), Lysosome-associated membrane protein-2 (S79873), GM2 activator protein (X62078), alpha mannosidase (U37248), Alpha mannosidase II isozyme (L28821), Beta-galactoside alpha-23-sialyltransferase (SIAT4A) (L13972), Gal beta-13 GalNAc alpha-23 sialyltransferase (ST3Gal II) (U63090), Gal-beta(1-3/1-4)GlcNAc alpha-23-sialyltransferase (X74570), G9 encoding sialidase (X78687), Acid sphingomyelinase (ASM) (M59916), N-acetylglucosaminyltransferase I (GlcNAc-TI) (M55621), Beta-globin (U01317), Spot14 (Y08409), Spermidine synthase (M64231), Spermidine/Spermine N1-Acetyltransferase (HG172-HT3924), Prepro-plasma carboxypeptidase B (M75106), putative purinergic receptor P2Y10 (AF000545), Ubiquitin (M26880), Semaphorin V (U28369), aminoacylase 1 (L07548), N-acetylglucosaminyltransferase V (D17716), apolipoprotein apoC-IV (U32576), Alpha topoisomerase (L47276), Azurocidin (M96326), Uridine phosphorylase (X90858), Guanine nucleotide regulatory protein (tim1) (U02082), Guanylate binding protein isom II (GBP-2) (M55543), soluble guanylate cyclase (X66534), Osteomodulin (AB000114), Deoxyuridine nucleotidohydrolase (U31930), Calcium-sensing receptor (D50855), Granule membrane protein-140 (M25322), ELAM-1 ligand fucosyltransferase (ELFT) (M58597), p52 and p64 N-Shc (D84361), Crystallin Alpha A (HG3286-HT3463), Polypeptide 7B2 (Y00757), Tax helper protein 1 (D14827), Preferentially expressed antigen of melanoma (PRAME) (U65011), MNK1 (AB000409), UDP Galactose 4 epimerase (L41668), IPL (AF001294), Carbonyl reductase (J04056), Uromodulin (Tamm-Horsfall glycoprotein) (M15881), Enigma (L35240), 40871 sequence (U72507), Endogenous retroviral protease (M27826), lrp (X79882), Phosphomevalonate kinase (L77213), Unknown function protein (AF015910), dihydrodiol dehydrogenase (U05861), Modulator recognition factor I (MRF-1) (M62324), transglutaminase (M98447), Cpg-Enriched Dna Clone S19 (HG3995-HT4265), AML1b protein (D43968), Effector cell protease receptor-1 (EPR-1) (L32866), Folylpolyglutamate synthetase (M98045), Zn-alpha2-glycoprotein (X59766), Glucose transporter-like protein-III (GLUT3) (M20681), CO-029 (M35252), Pyruvate kinase type L (M15465), Ornithine transcarbamylase (K02100), Beta-casein (X13766), DCC (deleted in colorectal cancer) (S81294), Myeloid progenitor inhibitory factor-1 MPIF-1 (U85767), Carcinoembryonic antigen (CEA)

(M29540), Estrogen sulfotransferase (U55764), Paraoxonase 2 (PON2) (L48513), TESK1 (D50863), Glucokinase (GCK) (M90299), Biphenyl hydrolase-related protein (X81372), Centrin (U03270), Insulin (J00268), Calcium activated neutral protease large subunit (muCANP) (X04366), Translational initiation factor (eIF-2) alpha subunit (J02645), Oncogene Mll-Af4, Fusion Activated (HG4757-HT5207), PSE-binding factor PTF gamma subunit (U44754), TIMP-3 (D45917), Zinc finger protein ZNF133 (U09366), GP-39 cartilage protein (Y08374), Transmembrane 4 superfamily protein (SAS) (U01160), Gastrin-releasing peptide (K02054), Carnitine palmitoyltransferase I type I (Y08682), HIC-1 fragment (L41919), Diacylglycerol kinase (X62535), (clone NF 10) cytochrome P-450 nifedipine oxidase (J04449), MAGE-2 (L18920), (clone F-T03796) STM-2 (L43964), Chondroitin sulfate proteoglycan (MCSP) (X96753), Importin alpha 6 (AF005361), RNase A (D26129), Peripherin (PRPH) (L14565), Treacher Collins syndrome (TCOF1) (U76366), Aminoimidazole carboxamide ribonucleotide transmylase/inosinase (D82348), CGM7 nonspecific cross-reacting antigen (NCA) (D90276), G9a (X69838), CLA-1 (Z22555), Mevalonate pyrophosphate decarboxylase (MPD) (U49260), Acyl-CoA thioester hydrolase (U91316), Clathrin, Light Polypeptide B (HG2797-HT2906), Tissue plasminogen activator (PLAT) (K03021), Antigen of paraneoplastic sensory neuronopathy patients (M62843), Autoantigen NOR-90 (X56687), MAC30 (L19183), Dihydroorotate dehydrogenase (M94065), Neogenin (U61262), T-Plastin (HG2755-HT2862), Sarcolipin (SLN) (U96094), Fetal apolipoprotein AI precursor (X01038), Short-chain alcohol dehydrogenase family (D82061), 8-oxo-dGTPase (D16581), 4-aminobutyrate aminotransferase (S75578), RNase 4 (D37931), Glucose-6-phosphatase (U01120), ADP-ribosyltransferase (S74683), MHC Class I region proline rich protein (U63336), Achaete scute homologous protein (ASH1) (L08424), HFREP-1 (D14446), Ectodermal dysplasia protein (EDA) (U59228), Kruppel related zinc finger protein (HTF10) (L11672), DNA polymerase delta catalytic subunit (M80397), Elongin A (L47345), Succinate dehydrogenase iron-protein subunit (sdhB) (U17886), Ret Transforming (HG2825-HT2949), Proline-Rich protein Prb4 (HG4490-HT4876), S100A2 (Y07755), Nuclear factor erythroid 2 isom f (S77763), I-plastin (L20826), Gastrin releasing peptide receptor (GRPR) (M73481), Proto-onco Wnt7a (U53476), Farnesol receptor HRR-1 (U68233),

P1-Cdc21 (X74794), MSX-2 (D89377), secretin receptor (U28281), LDLC (Z34975), Methylenetetrahydrofolate Reductase (HG4234-HT4504), 6-pyruvoyl-tetrahydropterin synthase (D17400), ASM-like phosphodiesterase 3b (Y08134), Placental bikunin (U78095), Xanthine Dehydrogenase (HG3288-HT3465), Intestinal mucin (MUC2) (L21998), Secreted epithelial tumour mucin antigen (X52228), Profilin II (L10678), Fatty acids omega-hydroxylase (cytochrome P-450HKV) (D13705), HU-K4 (U60644), TCTEL1 (D50663), ITBA2 protein (X92896), PEP19 (PCP4) (U52969), Argininosuccinate synthetase (X01630), Expressed pseudo TCTA at t(1;3) translocation site (L41143), 6-phosphofructo-2-kinase/fructose-26-bisphosphatase (X52638), DROER homolog (D85758), Peroxisomal L-alanine:glyoxylate aminotransferase (X53414), X11 protein (U79255), PD-ECGF/TP (S72487), PBX2 (X59842), transcobalamin II (TCN2) (L02648), Palmitoylated erythrocyte membrane protein (MPP1) (M64925), Heat shock protein E coli DnaJ homolog (L08069), Int-1 mammary oncogene (X03072), Gravin (U81607), Glyoxalase II (X90999), and MURR1 (D85433), Alpha satellite and satellite 3 junction DNA sequence (M21305), ORF (M68864), Pregnancy-specific beta-1-glycoprotein PSGGA (M37755), LIMK-2 (D45906), A33 antigen precursor (U79725), Neuroendocrine-dlg (NE-dlg) (U49089), Nucleolar protein HNP36 (X86681), Mucin 3, Intestinal (HG2147-HT2217), B-cell pseudoautosomal boundary-like sequence (D55638), ELAM-1 ligand fucosyltransferase (ELFT) (M58597), Factor VII serine protease precursor (M13232), EPC-1 (U57450), 17 beta hydroxysteroid dehydrogenase type 2 (L11708), Ini1 (U04847), Nup88 (Y08613), Cysteine protease CPP32 isom alpha (U13737), Int-2 protooncogene (X14445), GRB-7 SH2 domain (D43772), SH3 binding RES4-23A (AB000462), Platelet glycoprotein IIb (GPIIb) (M34344), R2 inducible membrane protein (X53795), MUC6 (HG880-HT880), RING protein (Y07829), EYA3 (Y10262), Prostasin (L41351), Lambda/iota-prot kinase C-interacting protein (U32581), EYA1 (Y10260), BENE (U17077), Prolargin (PRELP) (U41344), HRX-like protein (Y08836), Alpha-1-Antitrypsin (HG3517-HT3711), and ATP-binding cassette protein (U18237).

23. (Presently amended) The method of ~~claims~~claim 20, ~~or 21~~, wherein the at least one gene product further comprises KIAA0176 (D79998), KIAA0123 (D50913), KIAA0320 (AB002318), KIAA0198 (D83784), KIAA0163 (D79985) and KIAA0246 (D87433),

KIAA0028 (D21851), KIAA0224 (D86977), KIAA0018 (D13643), KIAA0113 (D30755), KIAA0011 (D13636), KIAA0181 (D80003), KIAA0182 (D80004), and KIAA0317 (AB002315), KIAA0159 (D63880), KIAA0384 (AB002382), KIAA0207 (D86962), KIAA0175 (D79997), KIAA0049 (D30756), KIAA0061 (D31765), KIAA0154 (D63876), KIAA0109 (D63475), KIAA0057 (D31762), KIAA0186 (D80008), KIAA0006 (D13631), KIAA0095 (D42085), KIAA0192 (D83783), KIAA0199 (D83782), KIAA0263 (D87452), KIAA0140 (D50930), KIAA0048 (D28588), KIAA0040 (D25539), KIAA0008 (D13633), KIAA0030 (D21063), KIAA0051 (D29640), KIAA0153 (D63487), KIAA0144 (D63478), KIAA9001 (D42040), KIAA0107 (D14663), KIAA0118 (D42087), KIAA0130 (D50920), and KIAA0167 (D79989).

24. (Original) The method of claim 1, further comprising modulating the level of a gene product in Tables 16, 17 or 18, or CD18.
25. (Original) A method for treating or preventing multiple sclerosis (MS) comprising administering to a subject with MS a composition that causes a decrease in the activity level or expression of a gene product selected from the group consisting of those genes indicated by a plus (+) sign in Tables 1-15, other than those indicated by an asterisk.
26. (Original) The method of claim 25, further comprising a second MS therapy.
27. (Original) The method of claim 26, wherein the second MS therapy is given before the composition.
28. (Original) The method of claim 26, wherein the second MS therapy is given after the composition.
29. (Original) The method of claim 26, wherein the second MS therapy is given concurrent with the composition.
30. (Original) The method of claim 26, wherein said second MS therapy is interferon β 1a, interferon β 1b, glatiramer acetate, and mitoxantrone.

31. (Original) The method of claim 25, wherein the composition comprises peptide.
32. (Original) The method of claim 25, wherein the composition comprises a small molecule.
33. (Original) The method of claim 25, wherein the composition is an organo-pharmaceutical.
34. (Original) The method of claim 25, wherein the composition comprises an expression cassette comprising a nucleic acid encoding an antisense construct or a ribozyme targeting the selected gene product, and a promoter active in eukaryotic cells, said nucleic acid operably linked to said promoter.
35. (Original) The method of claim 34, wherein said nucleic acid is comprised in a non-viral vector.
36. (Original) The method of claim 34, wherein said nucleic acid is comprised in a viral vector.
37. (Original) The method of claim 36, wherein said viral vector is an adenoviral vector, an adeno-associated viral vector, a retroviral vector, a herpesviral vector, a vaccinia viral vector or a polyoma viral vector.
38. (Original) The method of claim 34, wherein said promoter is a constitutive promoter, a tissue specific promoter or an inducible promoter.
39. (Original) The method of claim 38 wherein the tissue specific promoter is a neuronal cell promoter, a glial cell promoter, a monocyte promoter, a lymphocyte promoter, or a B cell promoter.
40. (Original) The method of claim 34, wherein said expression cassette further comprises a polyadenylation signal.
41. (Original) The method of claim 25, wherein said composition is administered intradermally, subcutaneously, intramuscularly, intraperitoneally, intravenously,

intranasally, intraalveolarly, parenterally, intrathecally, intraparenchymally or intraperitoneally.

42. (Original) The method of claim 25, wherein said composition is administered to said mammal more than once.
43. (Original) The method of claim 25, wherein said composition is administered to said mammal in repeated discrete dosings.
44. (Original) The method of claim 25, where the at least one gene product comprises autoantigen calreticulin (M84739), ubiquitin-conjugating enzyme (UBE2I) (U45328), Wiskott-Aldrich syndrome protein (WASP) (U12707), placental type alkaline phosphatase (ALP-1) (J04948), and extracellular-superoxide dismutase (SOD3) (J02947).
45. (Presently amended) The method of claim 25-~~or~~ 44, where the at least one gene product comprises Protein tyrosine phosphatase sigma (U35234), expressed pseudo T-cell leukemia translocation-associated (TCTA) (L41143), Alpha1(XI) collagen (COL11A1) (U12139), Tyk2 non-receptor protein tyrosine kinase (X54637), and Spliceosomal protein Sap 62 (HG3033-HT3194).
46. (Presently amended) The method of claim 25-~~or~~ 44, where the at least one gene product comprises anti-B cell autoantibody IgM heavy chain variable VDJ region (U24683), Ig Heavy Chain, Vdjrc Regions (HG3731-HT4001), Ig-related 14.1 protein (M27749), Omega light chain protein 14.1 (Ig lambda chain related) (M34516), IGHA1 from Ig germline H-chain G-E-A region A: gamma-3 5 (J00220), Fc-gamma-RIIA IgG Fc receptor class IIA (X68090), Fc Receptor Iib3 For Igg, Low Affinity (HG491-HT491), Ig-like transcript 2 (U82279), Ig Heavy Chain Vdjc Regions (HG4458-HT4727), Ig J chain (M12759), and Ig alpha 2=Ig A heavy chain allotype 2; Also: S55735 (S71043).
47. (Presently amended) The method of claim 44, ~~45, or~~ 46, wherein the at least one gene product further comprises NRAMP1 (D50402), Leukocyte adhesion protein (LFA-1/Mac-1) (M15395), T cell receptor zeta-chain (J04132), T-cell receptor T3 gamma polypeptide (X04145), Interferon (IFN-alpha-M1) (M27318), Interferon alpha IFN-alpha 6 (X02958), Alpha interferon (V00551), Interferon-gamma receptor alpha chain

(U19247), Interferon gamma receptor accessory factor-1 (AF-1) (U05875), TNF receptor (M58286), Tumor Necrosis Factor Receptor 2 Associated protein Trap3 (HG4683-HT5108), IFNB 1 (V00535), IL-4 splice variant (X81851), Interleukin-6-receptor (X58298), Interleukin-8 receptor type B (IL8RB)/U11877 (U11877), Interleukin-15 receptor alpha chain precursor (IL15RA) (U31628), Complement component 2 (C2) allele b (L09708), Complement component C9 (X02176), Adipsin/complement factor D (M84526), Complement component properdin; Also: X57748 (M83652), C5a anaphylatoxin receptor (M62505), Lipocortin (X05908), Beta-hexosaminidase beta-subunit (HEXB) (M23294), L-histidine decarboxylase (D16583), GPSAT=glycophorin SAT; Also: L31860 (S77893), Tyrosine Kinase Receptor Axl 2 (HG162-HT3165), Phospholipid Transfer protein (HG3945-HT4215), MHC class I-related protein; Also: X91625, U65416, X92841 (L14848), MHC class II HLA-DP light chain (M57466), MHC class II HLA-DR-beta-1*09012 (HLA-DRB1*09012) (M96132), MBP-2 MHC binding protein 2 (X65644), Platelet/endothelial cell adhesion molecule-1 (PECAM-1) (L34657), ME491/CD63 antigen (X62654), Heat shock protein hsp40 homolog (U40992), Heat-shock protein HSP70B' (X51757), Thromboxane synthase (M80647), Thromboxane A2 receptor (D38081), Thrombospondin 2 (HG896-HT896), Granulocyte colony-stimulating factor receptor (CSF3R) (M59820), Plasminogen activator inhibitor type 1 N-terminus (X04729), Autoimmune Antigen Thyroid Disease-Related Antigen (HG3578-HT3781), Integrin beta-5 subunit (X53002), Integrin beta 7 subunit (S80335), Neuronal PAS1 (NPAS1) (U77968), Prointerleukin 1 beta (X04500), Interleukin 1 receptor antagonist IRAP (X53296), R kappa B (U08191), Cathepsin C (X87212), Lymphocyte Antigen Hla-G3 (HG273-HT273), Lymph node homing receptor (M25280), Monocyte chemoattractant protein-4 precursor (MCP-4) (U46767), thymosin beta (D82345), Tissue inhibitor of metalloproteinase 4 (U76456), Pancreatic phospholipase A-2 (PLA-2) (M21056), Fetal brain adenylyl cyclase (L05500), Adenylyl cyclase (L21993), Guanine nucleotide-binding protein (Gi) alpha subunit (M27543), Type 2 inositol 1 4 5-trisphosphate receptor (D26350), Putative G protein-coupled receptor (AZ3B); Also: U62027 (U28488), GNAT1 transducin alpha-chain (X15088), Transducin beta-2 subunit (M36429), Transducin-like enhancer protein (TLE3) (M99438), Low-Mr GTP-binding protein (RAB31) (U59877), 43 kDa inositol polyphosphate 5-phosphatase (Z31695),

RAB7 (X93499), Ras Inhibitor Inf (HG511-HT511), R-ras (M14949), RasGTPase activating protein (D78156), Clone 110298 (L43579), Rab GDI (D13988), RhoE=26 kda GTPase homolog (S82240), HSPDE4C1 3,5 -cyclic AMP phosphodiesterase (Z46632), SLP-76 associated protein (U93049), Calmodulin (M19311), Calmodulin dependent phosphodiesterase PDE1B1 (U56976), Calcineurin A catalytic subunit (S46622), Cyclophilin C (S71018), Cyclophilin-like protein (U37221), Secreted cyclophilin-like protein (SCYLP) (M63573), Fk506-Binding protein (HG1139-HT4910), Phospholipase C (M37238), GTPase activating protein (rap1GAP) (M64788), RasGTPase activating protein (D78156), Ras-Specific Guanine Nucleotide-Releasing Factor (HG2510-HT2606), Ras-related protein Rab5b (X54871), Ras inhibitor (Rin1) (L36463), RIN protein (Y07565), Guanine Nucleotide-Binding protein Rap2 (HG1996-HT2044), Guanine nucleotide-binding protein (Gi) alpha subunit (M27543), Guanine nucleotide-binding protein G-s-alpha-3 (M21142), Small G protein (Gx) (M64595), pp52=B lymphocyte signal transduction (S58733), GPR3 G protein-coupled receptor (U18550), Dishevelled homolog (DVL) (U46461), Protein kinase C delta-type (D10495), ERK6 extracellular signal regulated kinase (X79483), Tyrosine kinase (TXK) (L27071), Serine/Threonine Kinase (HG2709-HT2805), Tyrosine kinase (ELK1) (M25269), Casein kinase I gamma 2 (U89896), Calcium, calmodulin-dependent protein kinase II gamma (U50360), ERK6 extracellular signal regulated kinase (X79483), Serine/threonine kinase MNB (mn) (U52373), T cell-specific tyrosine kinase (L10717), (clone FBK III 11c) protein-tyrosine kinase (DRT) (L41939), Phosphorylase kinase (PSK-C3) (M31606), p35 regulatory subunit of cdk5 kinase (X80343), 40 kDa protein kinase related to rat ERK2 (Z11695), PCTAIRE-3 serine/threonine protein kinase (X66362), Protein-tyrosine-phosphatase D1 (X79510), Tyrosine Phosphatase 1; Also: U12128 (HG3187-HT3366), Protein tyrosine phosphatase delta (L38929), Protein phosphatase 2A alpha subunit (M64929), Fructose 6-phosphate 2-kinase/fructose 2,6-bisphosphatase (D49817 and D49818), Inositol polyphosphate 1-phosphatase (L08488), Protein phosphatase 5 (X89416), Protein phosphatase X (X70218), InsP3 5-phosphatase; Also: Z31695 (X77567), Putative G protein-coupled receptor (AZ3B) (U28488), Cyclic nucleotide phosphodiesterase PDE2A3 (U67733), RGS3 (AF006609), Beta catenin/TCF-4 (Y11306), Nicotinic acetylcholine receptor alpha4 subunit precursor (U62433), Alpha-

A1-adrenergic receptor (M76446), Beta 4 nicotinic acetylcholine receptor subunit (U48861), m3 muscarinic acetylcholine receptor (CHRM3) (U29589), Olfactory receptor cluster (U58675), Vasopressin V1b receptor (D31833), 43kD acetylcholine receptor-associated protein (Rapsyn) (Z33905), Atrial natriuretic factor (M54951), Monoamine oxidase A (MAOA) (M68840), Transcobalamin I (J05068), Cholecystikinin type A receptor (CCK-A) (U23430), Growth hormone-releasing hormone receptor (L01406), Follicle stimulating hormone receptor (M65085), Chorionic gonadotropin beta subunit (K03189), CB2 (peripheral) cannabinoid receptor (X74328), Beta-2-adrenergic receptor (M15169), Spasmolytic polypeptide (SP) (X51698), Thyroid transcript factor 1 (X82850), Platelet factor 4 (PF4) (M25897), Preproinsulin; Also: M10039 (V00565), Insulin-like growth factor binding protein 5 (IGFBP-5) (M65062), IGF binding protein complex acid-labile subunit a (M86826), Glucagon-like peptide-1 receptor with CA dinucleotide repeat (U01157), Choline Acetyltransferase (HG4051-HT4321), hIRS-1=rat insulin receptor substrate-1 homolog (S85963), NMDA receptor modulatory subunit 2A (hNR2A) (U09002), Metabotropic glutamate receptor 4; Also: X80818 (U92457), Excitatory amino acid transporter 4 (U18244), PephBGT-1 betaine-GABA transporter (U27699), Corticotropin releasing factor receptor (L23333), Parathyroid hormone-related protein (M17183), Somatostatin receptor subtype 3 (SSTR3); Also: Z86000 (M96738), T3 receptor-associating cofactor-1; Also: U37146 (S83390), Telencephalin precursor (U72671), (clone CR-3) teratocarcinoma-derived growth factor 3 TDGF3 (M96956), P2x purinoceptor (AF000234), P2X7 receptor (Y09561), Group-specific component vitamin D-binding protein (M11321), Thymidylate kinase (CDC8) (L16991), DNA-repair protein (XRCC1) (M36089), Replication factor C 37-kDa subunit (M87339), Sox3 (X71135), SOX-4 protein (X70683), SOX5=Sry-related HMG box (S83308), RAD51 (D14134), Mutator (hMSH2) (U03911), Cdc25A (M81933), RBP2=retinoblastoma binding protein 2 (S66431), SWI/SNF complex 60 KDa subunit (BAF60c) (U66619), Retinoic acid receptor gamma 1 (M38258), Cellular retinoic acid-binding protein (S74445), Cyclin I (D50310), Checkpoint suppressor 1 (U68723), Cell cycle checkpoint control protein (U53174), PRAD1 cyclin (X59798), Cyclin F (Z36714), CCG1/TFIIDp250 (D90359), (clone mfl8) RNA polymerase II (L37127), TFIIC Box B-binding subunit (U02619), Ets domain protein ERF (U15655), Myelin TRANSCRIPTION FACTORS 1 (MTF1)

(M96980), Paired Box Hup1 (HG2188-HT2258), Homeotic protein Hox54 (HG3502-HT3696), Homeobox (clone HHO.c13); Also: X17360 (X04706), HOX 5.1 protein (X17360), Homeobox protein (PHOX1) (M95929), Homeotic protein Hpx-42 (HG3884-HT4154), Khead Family Afx1 (HG4245-HT4515), AFX protein (X93996), PAX3B=transcription factor; Also: S69369 (S69370), Pur (pur-alpha) (M96684), HOX7 (M76732), Delta opioid receptor (U07882), Nuclear orphan receptor LXR-alpha (U22662), PAX3A=TRANSCRIPTION FACTOR (S69369), Basic Transcription Factor 44 Kda Subunit (HG3748-HT4018), B-cell specific TRANSCRIPTION FACTOR (BSAP) (M96944), Nucleolar autoantigen No55 (U47621), Transcription elongation factor (SII) (M81601), Polyadenylate binding protein II (Z48501), ERF-2 (X78992), DNF1552 (lung) (J03068), High mobility group protein HMG-I(Y) (L17131), Putative HMG-17 non-histone protein (X13546), B-myb (X13293), Erythroid-specific TRANSCRIPTION FACTORS EKLF (U65404), Faciogenital dysplasia (FGD1) (U11690), Br140 (M91585), MSS1 (D11094), Nuclear factor I-X (L31881), Zn-15 related zinc finger protein (rlf) (U22377), Id-related helix-loop-helix protein Id4 (U28368), DNA-binding protein (HRC1) (M91083), DNA binding protein (HPF2) (M27878), Indian hedgehog protein (IHH) (L38517), PBX2 (X59842), Transcription Factor Btf3 Homolog M90355 (HG4518-HT4921), Proto-Oncogene C-Myc (HG3523-HT4899), Spi-1 proto-oncogene (X52056), Spi-B (X66079), Proliferating cell nuclear antigen (PCNA) promoter region (J05614), p50-NF-kappa B homolog (S76638), Basic TRANSCRIPTION FACTOR 62kD subunit (BTF2) (M95809), Basic Transcription Factor 44 Kda Subunit (HG3748-HT4018), TRANSCRIPTION FACTOR SIM2 short form (U80457), C-kit proto-oncogene (X06182), Id-related helix-loop-helix protein Id4 (U28368), C/EBP gamma (U20240), Interleukin-1 beta convertase (IL1BCE, CASPASE 1) (M87507), DNA (cytosin-5)-methyltransferase (X63692), RNA polymerase subunit hRPB 33 (J05448), Inducible poly(A)-binding protein (U33818), H12 histone H1 (X57129), H2B/h/Z80780 (Z80780), H4/h H4 histone (X60487), Myeloid elf-1 like factor (MEF) (U32645), TRANSCRIPTION FACTOR GATA-2 (M77810), NBK apoptotic inducer protein (X89986), L-type calcium channel (Z26256), CNG2=cyclic nucleotide-gated cation channel/S76067 (S76067), Vacuolar H⁺-ATPase (L35249), K⁺ channel beta 2 subunit (U33429), Epithelial amiloride-sensitive sodium channel gamma

(X87160), Channel-like integral membrane protein (CHIP28) (M77829), K-CI cotransporter (hKCC1) (U55054), Voltage-gated calcium channel beta subunit (U07139), DHP-sensitive calcium channel gamma subunit (CACNLG) (L07738), P/Q-type calcium channel alpha1 subunit; Also: U79663 (X99897), Acid sphingomyelinase (ASM) (M59916), N-acetylglucosaminyltransferase I (GlcNAc-TI) (M55621), Alpha (1,3) fucosyltransferase (FUT6), GalNAc-T4/Y08564 (Y08564), Acid ceramidase (U70063), Beta-galactoside alpha26-sialyltransferase (SIAT1)/U67849 (U67849), UCP1 uncoupling protein (X51954), UCP3S (U82818), Glutathione transferase M3 (GSTM3) (J05459), Selenium-binding protein (hSBP)/U29091 (U29091), Manganese superoxide dismutase SOD2 (X07834), ATL-derived factor/thioredoxin (X77584), Ceruloplasmin (ferroxidase) (M13699), FDXR (adrenodoxin reductase); Also: HG2836-HT2962 (M58509), Mitochondrial NAD(P)+ dependent malic enzyme (M55905), HALPHA44 alpha-tubulin (X06956), Alpha1(XI) collagen (COL11A1) (U12139), Alpha-1 collagen type II s 1 2 and 3 (M60299), Skeletal muscle LIM-prot SLIM2 (U60116), Beta-myosin heavy chain (M21665), Dermal fibroblast elastin (X52896), Cadherin (D88799), Cardiac troponin I (X90780), Cardiac troponin T (X74819), Chitotriosidase precursor (U29615), Apolipoprotein AII (X04898), Hair keratin hHb5 (X99140), Hair keratin hHb6 (X99142), High-sulphur keratin (X63755), Collagen Type Viii Alpha 1 (HG2614-HT2710), a1(XIX) collagen chain; Also: U09279 (D38163), Myotubularin related protein 1 (MTMR1) (U58032), Myosin VIIA (USH1B) (U39226), Beta-myosin heavy chain; Also: X52889 (M21665), Myosin, Heavy Polypeptide 10, Non-Muscle (HG2175-HT2245), Myosin; Also: M36769 (Z38133), Smooth muscle myosin heavy chain isoform Smemb (S67247), Embryonic/atrial myosin light chain (MLC-1-emb/A isoform) (M37075), High-sulphur keratin (X63755), Microtubule-associated protein 2 (MAP2) (U01828), Microtubule-associated tau protein (X14474), Alpha 1 syntrophin (S81737), Dystrobrevin-epsilon; Also: U46744 (U46746), Dynactin (U73799), Dynein HeavyChain (HG2417-HT2513), Enteric smooth muscle gamma-actin (D00654), Non-muscle alpha-actinin (M95178), Microtubule-associated protein 2 (MAP2) (U01828), Duchenne Muscular Dystrophy protein (Dmd); Also: M18533 (HG2260-HT2349), Synaptophysin (p38) (X06389), Ladinin (LAD) (U42408), Beta B1-crystallin (U35340), Cylicin (Z22780), Cylicin II (Z46788), Loricrin (M94077), Intestine-specific annexin

(Z11502), Annexin V (ANX5) (U01691), Phospholipid scramblase (AF008445), BAK BCL-2 homolog (X84213), Bcl-2 binding component 3 (bbc3) (U82987), Survival motor neuron protein (U80017), Phosphoribosylpyrophosphate synthetase (X15331), Uroporphyrinogen III synthase (J03824), Muscle glycogen synthase (J04501), ATP synthase B chain (D28383), Deoxyhypusine synthase (U26266), Pyrroline 5-carboxylate synthetase (X94453), S-adenosylmethionine synthetase (D49357), G7a valyl-tRNA synthetase (X59303), Aromatase (estrogen synthetase) (X13589), PP15 (placental protein 15) (X07315), Placental protein 5 (D29992), Delta3, delta2-CoA-isomerase (L24774), Topoisomerase type II (M27504), Thyroid Peroxidase (HG2999-HT4756 or M25715), Triglyceride lipase (M29194), Hormone-sensitive lipase testicular isoform (U40002), LDL-phospholipase A2 (U24577), Carbonic anhydrase VII (CA VII) (M76424), Procarboxypeptidase A1 (X67318), Prepro-plasma carboxypeptidase B (M75106), Carboxypeptidase M (J04970), Melanocortin 5 receptor (MC5R) (L27080), PSG10 pregnancy specific glycoprotein 10 (X17098), Glutamate pyruvate transaminase (GPT) (U70732), Neurotensin receptor (X70070), hnRNP-E2 (X78136), Small Nuclear Ribonucleoprotein U1, 1snrp (HG4557-HT4962), Heterologous ribonucleoprotein A0 (U23803), Ribosomal protein L3 (X73460), XIST a (X56199), Sel-1 like (U11037), p126 (ST5) (U15131), Cleavage signal 1 protein (M61199), Membrane glycoprotein M6 (D49958), Post-synaptic density protein 95 (PSD95) (U83192), LDL-receptor related protein (X13916), Clone lambda 5 semaphorin (U33920), major transcript I (U27333), A9A2BRB7 (CAC)_n/(GTG)_n repeat-containing clone (U00952), Activin beta-A subunit (2) (X57579), Adducin Alpha Subunit 2 (HG651-HT4201), Gps2 (GPS2) (U28963), Involucrin (M13903), Docking protein (signal recognition particle receptor) (X06272), Tight junction (zonula occludens) protein ZO-1 (L14837), Apomucin (Z48314), Pancreatic mucin (J05582), Mucin/M22406 (HG1067-HT1067), Z68155 and others (X79683), Histo-blood group ABO protein (U15197), Hs-cul-4A (U58090), Plectin (PLEC1) (U53204), TPRC (X99720), Prolyl 4-hydroxylase alpha subunit (M24486), Prolyl 4-hydroxylase beta subunit (X05130), 4F2 glycosylated heavy chain (4F2HC) antigen (M21904), Cosmid clone LUCA17/3p213 (AC002077) clone 1D2 (Z78289), Uridine nucleotide receptor (UNR) (U40223), Pre-splicing factor SRp20 (D28423), Lfp35 from BRCA1, Rho7 and vatI (L78833), p97 homolog (D85939), HIV-1 Nef

interacting protein (Nip7-1) (U83843), HFH4 (X99350), XG (clone RACE5) (Z48519), LLGL (D50550), MUF1 protein (X86018), Unknown protein (clone ICRFp507O0882) (Z70220), Heregulin-beta2 (M94167), NB-1 (M58026), Caveolin (Z18951), ATP-binding cassette protein (ABC2) (U18235), SNC19 sequence (U20428), UDP-galactose transporter 2 (D88146), CE29 4.1 (CAC)_n/(GTG)_n repeat-containing clone (U00928), gp25L2 protein (X90872), E6-AP ubiquitin protein ligase 3A (AF002224), Ribosomal DNA repeating unit (U13369), Vacuolar proton ATPase subunit D (X71490), Inter-alpha-trypsin inhibitor subunit 3 (X16260), Leukemia virus receptor 1 (GLVR1) (L20859), Clone S171 (L40393), Clone cD24-1 Huntington's candidate region fragment (L37199), FLII (U80184), Inhibin A-subunit (M13981), K12 protein precursor (U77643), Factor X (blood coagulation factor) (L29433), M25296 and others (M31776), Chondroadherin (U96769), Clone 23933 sequence (U79273), Protein immuno-reactive with anti-PTH polyclonal antibodies (U28831), Metastasis-associated mta1 (U35113), Bleomycin hydrolase (X92106), Gu binding protein (U78524), 65 kDa hydrophobic protein (U17566), Ribosomal protein L18a Homolog (HG4390-HT4660), Terminal transferase (M11722), Skeletal muscle LIM-protein SLIM2 (U60116), EVX1 (X60655), HNSPC (D82346), (23k/3) ubiquitin-conjugating enzyme UbcH2 (Z29331), Mg81 (HG909-HT909), Growth-arrest-specific protein (gas) (L13720), Peripheral myelin protein-22 (PMP22) 1B (U08096), Mouse transaldolase (U67611), hHKb1 protein (X81420), L-arginine:glycine amidinotransferase (X86401), Furin (X17094), UGT2BIO udp glucuronosyltransferase (X63359), Transmembrane protein Tmp21-Ilex (X97444), U1 small nuclear RNP-specific C protein (X12517), Nicotinamide nucleotide transhydrogenase (U40490), Nicotinamide N-methyltransferase 1 and 5 ing region (U51010), Chymotrypsinogen (M24400), Netrin-2 like protein (NTN2l) (U86759), M95971 (J05252), Phosphoprotein Tal2 (HG4068-HT4338), PAC clone DJ525N14/Xq23 (AC002086), 62 kDa paraneoplastic antigen (L02867), Transglutaminase E3 (TGASE3) (L10386), NB Neurofibromin (D12625), HIV-1 Nef interacting prot (Nip7-1) (U83843), Uterus ficolin-1 (D83920), NF-AT3 (L41066), WD protein IR10 (U57057), Beta-microseminoprotein (MSP) (M34376), Clk2 (L29218), TNNT2 11/X98482 (X98482), RR2 small subunit ribonucleotide reductase (X59618), DD96 (U21049), AP-3 complex beta3A subunit (U91931), Hemopexin (M36803),

Recoverin (S62028), Cartilage matrix protein (CMP) (M55682), B56-delta (L76702), (~95%) SFTPA2D (HG3928-HT4198), Antileukoprotease (ALP) from cervix uterus (X04470), CD171 protein (Y10207), Thyroid receptor interactor (TRIP9) (L40407), H19 RNA (spliced in silico) (M32053), (clone S171) (L40393), Unknown protein (U82306), Coronin (X89109), KIAA0055 (D29956), Telomerase reverse transcriptase (AF015950), Tigger 1 transposable element (U49973), Transcript ch132/S77361 (S77361), Low density lipoprotein receptor (M28219), Chondroitin/dermatan sulfate proteoglycan (PG40) core protein (M14219), Endometrial bleeding associated factor (U81523), Fra-2 (X16706), Phosphoglucomutase 1 (HG3893-HT4163), Steroid 11-beta-hydroxylase (CYP11B1) (M32879), RSRFR2 (X63380), Small proline rich protein (sprII), clone 174N (M21302), CHD5 protein (Y12478), Na⁺,K⁺ -ATPase catalytic subunit alpha-III isoform (M37457), DP-2 (L40386), Propionyl-CoA carboxylase beta-subunit (M31169), NECDIN related protein (U35139), DNL1L from chromosome X region (L44140), GOS2 (M72885), Clones 23920 and 23921 sequence (U79271), Germline oligomeric matrix protein (COMP) (L32137), LISCH7 (liver-specific bHLH-Zip transcription factor) (AD000684), Cpg-Enriched Dna, Clone E18 (HG3991-HT4261), MADER (X70991), Bone morphogenetic protein-3b (D49493), Macrophage lectin 2 (D50532), Hereditary multiple exostosis (U96629), Erythrocyte membrane protein band 42 (EPB42) (M60298), Zinc finger protein (clone 647) (X16282), Branched chain decarboxylase alpha subunit (Z14093), Sterol regulatory element binding protein-2 (U02031), UDP-galactose translocator (D84454), Hermansky-Pudlak syndrome protein (HPS) (U65676), Ribonuclease k6 precursor/U64998 (U64998), Chromosome 12p15 BAC clone CIT987SK-99D8 sequence (U91327), Chromosome 17q12-21 clone pOV-2 (U18919), (clone p5-23-3) (L48692), Hypothetical protein Npiiy20/M76676 (HG167-HT167), Plakophilin; Also: X79293 (Z34974), 75-kD autoantigen (PM-Sc1) (M58460), High-mobility group phosphoprotein isoform I-C (HMGIC) (U28749), Alpha-1-antitrypsin-related protein (M19684), DLX-2 (Dlx2) (U51003), Blood platelet membrane glycoprotein Ib-alpha (GPIB) (M22403), Tumor-associated membrane protein homolog (TMP) (U43916), Clone A9A2BRB5 (CAC)_n/(GTG)_n repeat-containing (U00946), Zinc finger protein 45 (ZNF45) (L75847), Beige-like protein (BGL) (M83822), Splicing Factor Sc35 m 3 (HG3088-HT3263), HZF2 zinc finger protein (X78925), Cytosolic

serine hydroxymethyltransferase (SHMT) (L11931), S-lac lectin L-14-II (LGALS2) (M87860), Angiotensin II type 2 receptor (U20860), MN1 protein (clone ICRFp507I0498); Also: X82209 (Z70218), Splicing factor, SF1-Bo isoform; Also: L49380 (Y08766), Pregnancy zone protein (X54380), Nuclear respiratory factor 1 (NRF1) (U44848), Clones MDP4 MDP7 microsomal dipeptidase (MDP) (J05257), Gastrin-binding protein/X98225 (X98225), Acrosin (EC 342110) (Y00970), Peptide Yy; Also: D13897_rna2 (HG2348-HT2444), G protein-coupled receptor (STRL22) (U68031), CGM1 (HG1728-HT1734), Cystatin D (HG1098-HT1098), (clone 353) DRAL (L42176), (clone CTG-B37) sequence (L10377), Down syndrome critical region 1 (DSCR1) alternative 1 (U85265), Zinc Finger protein Zfp-36 (HG3491-HT3685), EAR-1r (D16815), (clone s22i71) (L40396), NCBP interacting protein 1 (D59253), Erythroblastosis virus onco homolog 2 (ets-2) (J04102), BLR1 Burkitt's lymphoma receptor 1 (X68149), Trabecular meshwork-induced glucocorticoid response protein (AF001620), bHLH-PAS protein Jap3 (U60415), Guanylin (M97496), Dioxin-responsive (S81578), RD/X99296 (X99296), Plasma inter-alpha-trypsin inhibitor heavy chain H(3) (X14690), Major Yo paraneoplastic antigen (CDR2) (M63256), PCI (plasminogen activator inhibitor 3) from protein C inhibitor (M68516), KNP-Ib; Also: U53003 (D86062), MJD1=MJD1 protein {CAG repeats} (S75313), POM121-like 1 (D87002), Cell surface glycoprotein P3.58 (M55024), Oviductal glycoprotein (U09550), Kallmann syndrome (KAL) (M97252), PACAP receptor (D17516), Retinal pigment epithelium-specific 61 kDa protein (RPE65) (U18991), Squamous cell carcinoma antigen=serine protease inhibitor (S66896), Clone 23948 sequence (U79293), Albumin, 3; Also: HG2841-HT2970, HG2841-HT2968 (HG2841-HT2969), Protein containing SH3 domain SH3GL2 (X99657), HK2 hexokinase II (Z46376), Ribosomal protein S6 kinase 2 (RPS6KA2) (L07597), Phosphoglycerate mutase, muscle-specific (PGAM-M) (J05073), IP prostacyclin receptor (D38128), Pan-2 (HG2604-HT2700), Anion Exchanger 3 Cardiac Isom (HG4128-HT4398), Tax1 binding protein (U25801), Hepatic nuclear factor 1-alpha (TCF-1-alpha)/U73499 (U73499), M-phase phosphoprotein mpp9 (X98258), Brain 4 (X82324), PTX3/X97748; Also: M31166 (X97748), Uroporphyrinogen decarboxylase (URO-D) /M60891 (M60891), pTR7 repetitive sequence/X15675 (X15675), Erythropoietin receptor (M60459), Sulfite oxidase (L31573), HM145

(D10925), PEBP2aC1 acute myeloid leukaemia (Z35278), Trpc2 transcript (possible pseudo) (X89067), P3 (X12458), CD20 receptor (S7) (X07203), Aromatic amino acid decarboxylase (ddc) (M76180), DNA sequence from Huntington's Disease Region (Z69923), BAC clone GS244B22/7q21-q22/AC002450 (AC002450), Cysteine protease (D55696), Semaphorin (CD100) (U60800), DNA on chromosome 22q11.2-qter contains GSTT1-2 (Z84718), WD repeat protein HAN11/U94747 (U94747), X64467_rna1 and others (M13928), Syt V (X96783), ltk; Also: D16105 (X52213), JTV-1 (JTV-1) (U24169), Alpha-L-iduronidase (M95740), Sterol carrier protein-X/sterol carrier protein-2 (SCP-X/SCP-2) (U11313), Aspartyl(asparaginyl)beta-hydroxylase; Also: U03109 (S83325), Presenilin 1 (PS1; S182); Also: L76517 (L76528), DAP-1 (X76105), SS-A/Ro ribonucleoprotein autoantigen 60 kD subunit (M25077), Endothelin-B receptor (D13168), Ca²⁺-dependent activator protein secretion (U36448), Placenta (Diff33) (U49188), Putative OSP like protein (U89916), Peroxisomal 70 kD membrane protein; Also: X83467_rna1 (M81182), Carnitine palmitoyltransferase II precursor (CPT1) (U09646), Isolate JuSo MUC18 glycoprotein (3 variant); Also: M28882 (M29277), Cytochrome P450 (CYP2A13) (U22028), Cytochrome P450c21 (M17252), and MBP1; Also: X15422 (X15954).

48. (Presently amended) The method of ~~claim~~claim 20, ~~or 21~~, wherein the at least one gene product further comprises: KIAA0006 (D13631), KIAA0010 (D13635), KIAA0053 (D29642), KIAA0060 (D31766), KIAA0064 (D31764), KIAA0066 (D31886), KIAA0079 (D38555), KIAA0086 (D42045), KIAA0091 (D42053), KIAA0092 (D42054), KIAA0100 (D43947), KIAA0133 (D50923), KIAA0150 KIAA0152 (D63486), (D63484), KIAA0187 (D80009), KIAA0201 (D86956), KIAA0217 (D86971), KIAA0230 (D86983), KIAA0235 (D87078), KIAA0240 (D87077), KIAA0260 (D87449), KIAA0281 (D87457), and KIAA0358 (AB002356).
49. (Original) The method of claim 25, further comprising modulating the level of a gene product in Tables 16, 17 or 18, or CD18.
50. (Original) A method of identifying a composition useful in the treatment or prevention of multiple sclerosis (MS) comprising:

- (a) providing a cell that expresses one or more genes identified in Tables 1-15, other than those indicated by an asterisk;
- (b) contacting said cell with a candidate substance; and
- (c) assessing the expression of the one or more genes,

wherein modulation of the expression of the one or more genes identifies said candidate substances as a composition useful in the treatment or prevention of multiple sclerosis MS.

- 51. (Original) The method of claim 48, wherein said cell is of neuronal, glial, endothelial, intravascular, perivascular, or central nervous system-infiltrating immune cell origin.
- 52. (Original) The method of claim 49, wherein said neuronal cell is a neural progenitor or stem cell.
- 53. (Original) The method of claim 49, wherein said glial cell is an astrocyte, microglia cell or oligodendrocyte.
- 54. (Original) The method of claim 49, wherein said intravascular cell is a myocyte.
- 55. (Original) The method of claim 49, wherein said perivascular cell is a pericyte.
- 56. (Original) The method of claim 49, wherein said central nervous system-infiltrating immune cell is a lymphocyte, a monocyte, or a B cell.